CENTEX BATESON CONSTRUCTION CO., INC.

CONTRACT NO. V101C-1567 **VABCA-4613 and 5162-5165**

VA MEDICAL CENTER HOUSTON, TEXAS

***David B. Dempsey*, *Esq.*, *Sheila C. Stark*, *Esq.*, and *David P. Handler*, *Esq.*, Piper & Marbury, L.L.P., Washington, D.C., for the Appellant.**

***James E. Petersen, Esq.*, and *Janet R. Lemons, Esq.*, Trial Attorneys; *Charlma J. Quarles, Esq.*, Deputy Assistant General Counsel; and *Phillipa L. Anderson, Esq.*, Assistant General Counsel, Washington, D.C., for the Department of Veterans Affairs.**

OPINION BY ADMINISTRATIVE JUDGE KREMPASKY

TABLE OF CONTENTS

OPINION

SECTION I: INTRODUCTION

Appellant, Centex Bateson Construction Company, Inc. (Bateson), on behalf of its electrical subcontractor, Dynalectric Company (Dynalectric), the real party in interest, has timely appealed the Department of Veterans Affairs' (VA or Government) denial of its claims totaling $572,129 in the five appeals with which we deal here for labor inefficiencies and other impact costs arising out of Dynalectric's work as the electrical subcontractor under Contract No. V101C-1567 (Contract) for the construction of the Department of Veterans Affairs Medical Center in Houston, Texas (VAMC Houston).

Dynalectric's claims arising from the Contract rest on 1,561 separate "events" consisting of various contract changes, both unilateral and bilateral, requests for information, and alleged constructive changes. The Board has grouped these "events" into the 63 appeals and consolidated the appeals for five separate hearings. The total amount claimed by Dynalectric for the 1,561 events is $3,347,398. The appeals under consideration here are the first group of the appeals, encompassing 104 of the "events", consolidated for hearing by the Board.

The Record before the Board consists of the Pleadings; a consolidated Appeal File (cited as "R4, tab __") consisting of 3,564 exhibits, numbered from 1 - 3,109 and 10,001 - 10,455; 27 exhibits introduced into evidence at the hearing by Dynalectric, cited as "Exh. A-__"); 504 exhibits introduced into evidence at the hearing by the VA, cited as "Exh. G- __"; 2 joint exhibits, cited as "Exh. J-_"; and, the 17 volume transcript of the 17 day hearing, held in Washington, DC, in this matter (cited as "Tr. [vol. #]:__"). During the course of the hearing in these appeals, Dynalectric changed its method for calculating its claims for the events encompassed within these appeals (and in some cases the amounts it claims) and presented testimony and other evidence utilizing the new methodology. The Board ordered Dynalectric to amend its Complaint to conform to the evidence; therefore, any reference to the Complaint is a reference to the Third Amended Complaint, dated July 14, 1997. The Third Amended Complaint consists of a cover letter dated July 13, 1997, Attachment 1 to the Complaint (a spreadsheet summary of amounts claimed by Dynalectric for each "event") and Attachment 2, (a 728 page spreadsheet entitled "XCOS_R" dated June 6, 1997 detailing Dynalectric's "impact" claims by category of damages on a month-by-month basis). Citations to a prior Complaint will include its full identifying title.

The appeals at issue here have been the subject of Cross Motions For Partial Summary Judgment. Dynalectric moved that the Board find, as a matter of law, the plans and specifications for certain of the events at issue here to be "defective." The Government moved that the Board find that either the plans or specifications were not defective or that any compensation due Dynalectric for the events relevant here has already been rendered pursuant to the Contract Changes clauses. The Board, in ***Centex Bateson Construction Co., Inc.***, VABCA-4613, 5162-65, 97-1 BCA ¶ 28915, denied the Cross Motions, finding material facts relevant to each of the parties' assertions to be in dispute.

The parties have submitted *seriatim* posthearing briefs in this matter. Both entitlement and quantum are before the Board.

SECTION II: PRELIMINARY MATTERS

The VA has moved to strike portions of Appellant's Reply Brief. The gravamen of the VA's motion rests on its assertion that Dynalectric has exceeded the permissible scope of a Reply Brief because the Reply is more than a simple reply to the VA's Response Brief. The VA asserts that Dynalectric has impermissibly advanced new arguments and made new characterizations of the evidence in the record in certain portions of the Reply Brief. In addition, the government asserts that "Exhibits" 9 and 10 attached to the Reply Brief are new evidence that should be struck under Rule 13(B).

In considering the Government's Motion, we have thoroughly examined the briefs in this case, no mean task when dealing with Appellant's 241 page Main Brief, the VA's 240 page Response Brief, and Appellant's 384 page Reply Brief. In the end, we conclude that the Reply Brief is mainly a repetition of the factual and legal arguments previously advanced together with factual citations responding to the specifics of the Government's position in its Response. There are some recharacterizations of evidence and argumentative tacks taken by Dynalectric in its Reply Brief differing from its Main Brief that do not solely reply to points raised by the Government in its Response. While we can appreciate the Government's consternation in not being able to respond specifically to some of these arguments, we see nothing in the Dynalectric's Reply that has not been raised or addressed by the parties throughout these proceedings.

There is nothing in the Briefing Order in these appeals or the Board's Rules that constrain Dynalectric's Reply Brief to the narrow confines urged by the Government. Ordinarily, we would expect a Reply Brief to be limited to the key factual presentation and arguments made by the opposition in the Response Brief; however, we see no basis to strike any part of the Reply Brief arguably going beyond such a presentation. We give no added weight for length or repetition in briefing; any party before us risks trying the Board's patience and losing credibility if its briefs fail to properly point out the facts and law applicable to the Board's decision in a clear and concise manner.

With regard to the "Exhibits" in Dynalectric's Reply, we do not view them as new evidence put forward after the evidentiary record in these appeals has closed. They are merely compilations or tabular representations of evidence that is in the record in this case.

Thus, we will treat Dynalectric's Reply, including the exhibits, for what it is -- argument. In this regard, our position in ***Araco Company***, VABCA No. 532, 67-2 BCA ¶ 6439, 29,843 succinctly summarizes how we view the Reply:

> This Board has never regarded statements of counsel made in their post-hearing briefs as evidence of facts in issue, and where counsel has attempted to present additional evidence in such manner it has consistently been disregarded. Similarly, we do not accept counsel's personal allegations of fact except to the extent we find they derive from or are supported by the evidence of record; and we consider, but do not rely upon, their views, argument and conclusions as to what the evidence

> of record reveals with respect to the issues in controversy. Partisan analysis of the record and argument thereon is expected and is unobjectionable. Attempts of counsel in their briefs to change or add to the testimony and evidence which properly constitute the existing record are disregarded. We have not ordinarily thought it necessary in considering counsel's briefs to declare a hard and fast line of distinction between counsel's statements that are in the nature of unsupported conclusions, or that go beyond the evidence of record, and those that sound in the nature of legitimate argument. In either case, we rely upon the evidence properly of record as the basis of our conclusions. The findings and conclusions stated in our decisions are our own, not those argued by counsel in their briefs, and they are based upon our own evaluation of the competent evidence that has been properly presented. The decision we issue on the merits of this case will be no exception.

The VA's Motion To Strike is **Denied**.

SECTION III: FINDINGS OF FACT

SECTION IIIA: GENERAL

These appeals involve the complete electrical installation in a large hospital building and certain terms will repeatedly appear. These terms and their definitions follow:

> **Buy Out**: A "Buy Out" refers to the price a contractor or subcontractor actually pays for materials that it needs or plans to buy in order to complete its construction. The "buy-out" price is an important consideration for contractors in determining their overall profit on a particular job, because contractors often plan to purchase or "buy out" materials bid at a price lower than the price estimated in the bid in order to maximize profit. (Tr. vol. I: 99, 115)
>
> **COCO**: A "COCO" is a Central Office Change Order. Any unilateral change to the Contract with a value in excess of the cost established or extending the Contract completion by more than the number of days designated by the Contracting Officer ("CO") as qualifying for issuance as a Field Change Order was required to be issued by the CO as a COCO. (Exhs. J-1, G-499)
>
> **COSA**: A "COSA" is a Central Office Supplemental Agreement. Any bilateral modification of the Contract with a value in excess of a value established or extending the Contract completion by more than a certain number of days designated by the CO as qualifying for issuance as a Field Supplemental Agreement was required to be negotiated and

issued by the CO as a COSA. (Exhs. J-1, G-499)

Conduit: This is the tubing of various types, composition, and sizes in which electrical wiring is placed. Conduit is also known as "pipe" or "raceway" and the terms are used interchangeably. Tr. vol. I: 80, 107; Tr. vol. VI: 754-55)

Coordination drawings: Drawings prepared by Bateson and its subcontractors prior to commencement of work showing the specific layout of the work of various trades to be installed in the VAMC Houston interstitial space and in the mechanical and electrical rooms. The purpose of coordination drawings is to insure that the installation of mechanical, electrical, and other work is coordinated and can be properly accomplished within the affected areas. (Exhs. G-63; J-1; Tr. vol. III: 408; Tr. vol. XIV: 2345; Tr. vol. XV: 2660-63)

FCO: An "FCO" is a Field Change Order. An FCO is a unilateral Contract change with a value up to $20,000 or extending the Contract completion date up to two days. FCOs were authorized to be executed by the VA on-site Houston VAMC project management staff under the authority delegated to them by the CO. FCOs with a total value of no more than $50,000 or extending the Contract completion date by no more than five days could be executed under the delegated authority in any one month. (Exhs. J-1, G-499)

Fragnet: Fragnet refers to revisions to the CPM schedule, which included changes to job logic, duration and logical restraints of each proposed change. They showed how work activities for the change fit into the whole project. The Fragnet logic was incorporated as revisions into the computerized CPM job schedule. Time extensions generated as a result of the Fragnets were incorporated into the FSAs and COSAs. (Tr. vol. XIV: 2352-53)

FSA: An "FSA" is a Field Supplemental Agreement. An FSA is a bilateral Contract modification negotiated by the VA on-site Houston VAMC project management staff under the authority delegated to them by the CO. An FSA was limited to the same monetary amount and Contract extension times as those for FCOs. (Exhs. J-1, G-499)

Go-Back: A "go-back" may be planned or unplanned. A **Planned Go-back** occurs during the normal sequencing of electrical construction work. For example, electrical rough-in work is performed before other electrical construction activities. Following the electrical rough-in, other trades must perform construction work before the electrical contractor may return to that area to perform subsequent activities such as trim-out. An electrical contractor typically plans to "go-back" to areas to perform trim-out following other ordered construction activities. Also referred to as a "scheduled

go-back." An **Unplanned go-back** is the return by a contractor or subcontractor to a work area to complete work previously stopped because of a problem, a change, or by the failure of a condition precedent to have occurred prior to, or during, a subcontractor's scheduled or "planned" work in a specified area. Where that contractor or subcontractor must return to that area on an unscheduled basis to complete work left incomplete due to a problem or a change that contractor or subcontractor is performing an "unplanned go-back." An **Unplanned go-back** is also referred to as "unscheduled go-back." (Tr. vol. II: 216-17, 267-8, 249-50; Tr. vol. III: 404-5; Tr. vol. V: 656-70 707-10; Tr. vol. VI: 798)

HOMEY: This is the designation given to the regularly updated schedule using a critical path method (CPM) of network analysis developed by Bateson for the VAMC project in Houston as required by the Contract. The Contract provisions require the division of the work at VAMC Houston into discrete activities and requires the listing of all those activities by area of the project and establishes the planned schedule for the performance of those activities by project area. (R4, tab 10,435; Tr. vol. III: 379)

HOMEY 1: This is the designation of the CPM schedule prior to re-sequencing of the project. (Tr. vol. VIII: 1309, Tr. vol. X: 1783-86, Tr. vol. XI: 1812-14, Tr. vol. XIV: 2263-70)

HOMEY 2: This is the designation of the CPM schedule subsequent to the re-sequencing of the project. (Tr. vol. VIII: 1309, Tr. vol. X: 1783-86, Tr. vol. XI: 1812-14, Tr. vol. XIV: 2263-70)

Labor Unit: A labor unit represents the amount of time (in terms of hours) that it takes an electrician to install a specific type of electrical material. Labor units are those derived from the NECA manuals. "Labor units" are used in estimating the amount of hours necessary to perform specific electrical installations by multiplying the proper labor unit by the amount (in terms of quantities) of materials that must be installed to arrive at an estimated total labor hour figure for that particular installation. (Exh. A-25; Tr. vol. I: 38, 51)

Layout: This term refers to the first phase of electrical construction work, with the second phase being rough-in and the final phase being trim-out (or finish activities). Layout refers to the identification and location of all electrical work to be installed based on or derived from the owner-furnished drawings or plans. Layout also specifically refers to the act of planning the electrical rough-in and trim-out by using owner furnished drawings to identify and measure the exact locations and types of equipment to be installed. (Tr. vol. III: 634-36)

Layout Drawings: These drawings are prepared as the end result of "layout." Generally, a contractor uses contract drawings to identify

locations for its electrical installations. The contractor then provides the locations or routes for electrical installations on the drawings for its journeymen electricians in the field by portraying that information on the layout drawings. (Tr. vol. XIII: 2220)

National Electrical Code: The National Electrical Code or "NEC" or "Code" is published annually by the National Fire Prevention Association. The NEC is the accepted industry standard setting forth minimum criteria for all aspects of safe electrical construction. (Tr. vol. VI: 750, 752-53)

NECA: National Electrical Contractors Association. NECA is an association of electrical contractors throughout the United States. NECA publishes standards for performance of electrical work. These standards for estimating the amount of labor required for a particular electrical installation are expressed in terms of "labor units." The NECA standards are well known to the construction industry personnel and are regularly used by electrical contractors in pricing electrical work. (Tr. vol. I: 38).

NECA Column: This term refers to the particular NECA labor unit in the NECA Manual applicable to the installation of specific electrical construction materials under specified construction site conditions. These labor units vary for any given material installation depending upon the conditions under which the electrical contractor will be installing the materials. These variations for any given material installation are set forth in the NECA columns. For example, NECA Column 1 pertains to the labor units required for the installation of large quantities of work under unencumbered and unchanged working conditions. NECA Column 5, by contrast, reflects higher labor units for the installation of small quantities of complicated installations under difficult and/or changed circumstances. (Tr. vol. I: 57, 59; Exh. A-25)

NECA Manual: This is the NECA *Manual of Labor Units-Quick Selector* manual that sets forth certain standardized labor units for particular discrete electrical installations in format permitting quick reference. The NECA manual was used in Dynalectric's bid preparation and in negotiating Contract changes. (Tr. vol. I: 57; Exh. A-25).

Request for Information (RFI): An RFI is the procedure instituted by the prime contractor, Bateson, in which it and its subcontractors notified the VA of questions and problems encountered on the Houston VAMC project and tracked the resolution of problems and questions. The electrical RFIs primarily notified the VA of problems in specific drawings, plans or specifications. The RFI described the problem and sought instruction in the form of additional information, clarification or proposed solutions to

problems identified by Bateson and its subcontractors. (Tr. vol. II: 211; Tr. vol. IV: 574; Exh. J-1)

Rough-in: Rough-in is the second stage of electrical construction during which time electricians forming the rough-in crews install conduit consistent with the instructions portrayed on the layout drawings. (Tr. vol. V: 606)

Trim-out: Also known as "finish work" or "finish activities." Trim-out is electrical construction work that includes the installation of receptacles, light switches, light fixtures, plates, trim items, equipment installation and hook-up, nurse call trim-out and fire alarm system trim-out. (Tr. vol. II: 310; Tr. vol. V: 607)

On January 2, 1987, the VA issued an Invitation for Bids ("IFB") for Phases II and III of the replacement/modernization of VAMC Houston. Bid opening was April 8, 1987, with four bidders. (R4, tab 4; Exh. J-1)

Bateson was awarded the Contract on May 29, 1987 for a price of $172,690,000. The VA issued the Notice to Proceed with the Contract on July 17, 1987. The Contract specified completion within 1,565 days of the Notice to Proceed, thus establishing the Contract completion date as October 9, 1991. On March 21, 1997, the VA made a supplemental appeal file submission consisting of Appeal File Exhibits 10,001-10,454. Included with that submission as part of the Appeal File was the Contract, including the Contract drawings, Contract Specifications, and all Contract changes and modifications. However, the Contract was not identified with an Appeal File Exhibit number; we designate the Contract as Appeal File Exhibit 10,455. (R4, tabs 5, 22, 10,455; Exh. J-1)

Through April 1995, there were 1,076 unilateral and bilateral modifications to the Contract, increasing the Contract price by $9,767,730 to $182,457,730, a 5.6% increase. Most of the Contract modifications were issued as FCOs or COCOs that were later definitized and superseded by bilateral modifications. This was the case for 348 of the 1,076 modifications to the Contract through April 1995. Consequently, there were 728 modifications to the Contract through April 1995. Building 100, the bulk of the project, was substantially complete in early summer 1991, with full completion in October 1991. (Exhs. G-11, G-495; Tr. vol. III: 439-40)

The construction of VAMC Houston was a three-phase project. As of the date of the award of the Contract, the VAMC Houston project was the largest hospital construction project ever undertaken by the VA. Phase I of the project was the construction of the foundation/basement of the new main hospital building, Building 100; Phase II was the completion of Building 100; and, Phase III was construction related to other buildings at the site. These appeals deal only with Phase II and III construction. (R4, tab 2522; Exh. J-1)

Building 100 has approximately 1.5 million square feet of floor space and a million square feet of space between floors (called "interstitial space") in which most of the building’s mechanical and electrical components are placed. The building is designed as

a unique, multi-level collection of roughly hexagonal cells from one to six floors in height running roughly from east to west. These hexagonal cells are designated "Area A", "Area B", *etc.* with the designations running from east to west; Areas would be further identified by floor, *i.e.* "3A" and by a room number. Each area consists of numerous rooms. Because of the complexity of hospital construction and various specialized services and equipment for various hospital activities such as medical gas, x-ray, *etc.* there was little commonality to the electrical installation in any cell or floor. (R4, tab 10,455; Exhs. J-1, G-5; Tr. vol. XIII: 2210-11)

The plans and specifications for the Houston VAMC project, consisting of eight volumes and approximately 2,500 drawings, were prepared by the architect/engineering joint venture of 3D/International, Inc. and Stone, Marraccini & Patterson ("A/E") under a contract entered into on March 14, 1985 for architectural services for the design and planning of Phases II & III of the Houston VAMC Project. As part of its contractual obligation, the A/E prepared electrical design documents setting forth in detail the electrical construction requirements including all electrical plans, elevations, sections, details, riser diagrams and schedules showing transformer vaults, telephone frame rooms, electrical and telephone closets, power distribution systems, auxiliary power systems, switchgear, generators, lighting fixtures, switching power outlets, and signal systems. (R4, tab 3040; Exh. J-1; Tr. vol. IV: 522-25; Tr. vol. XV: 2684)

The A/E-prepared drawings and plans instructed Appellant where particular electrical equipment (when identified) should be located. These drawings, plans and specifications also identified, within enumerated rooms, the locations where outlets or switches should be and identified how those outlets and switches should be serviced by electrical power. In preparing the electrical drawings for the Houston VAMC Project, the A/E also identified light fixture types and locations in particular rooms or spaces in Building 100. (R4, tab 10,455; Exh. J-1)

The A/E's drawings, specifications and plans for the electrical portion of the Houston VAMC Project provided detailed requirements for the size, type, rigidity, fittings, couplings, supports, outlets, junctions, pull boxes, and wireways. These documents also provided the requirements and locations for the installation of electrical conduit systems, boxes, electrical disconnects, secondary electrical unit substations, general purpose transformers, electrical distribution switchboards, interior building lighting, medical and surgical lighting fixtures, site lighting, and uninterruptible power systems. (Exhs. J-1, R4, tab 10,455).

The plans and specifications required that the electrical construction conform to the National Electrical Code unless specifically provided otherwise in the Contract drawings or specifications. (R4, tab 10,455; Exh. J-1)

Relative to electrical equipment, the Contract mandated that electrical equipment locations "be as close as practical to locations shown on the Drawing." In general, the Contract drawings depicted electrical work "schematically," or diagrammatically. Such depictions are normal in the industry in that they show circuits but not dimensioned locations of conduit, switches, and receptacles. The location of equipment to which electricity would be provided was dimensioned on architectural drawings. Actual locations of electrical installations are determined by the electrical contractor as part of

its layout of the work using the Contract drawings, technical information from the manufacturers of the electrical material to be installed, and the coordination drawings showing the installations of other trades. (R4, Tab 10,455; Exh.J-1; Tr. vol. IV: 531, 543-44; Tr. vol. VI: 778; Tr. vol. XV: 2661-66)

During the course of the project, the VA categorized some of the bilateral Contract modifications as resulting from A/E design errors or design omissions for its internal use. These categorizations were made pursuant to a VA Office Memorandum entitled "Policies and Procedures for Evaluation of Architect-Engineer Project Performance and for Determining Architect-Engineer Liability for Design and Construction Service Deficiencies" ("Policies and Procedures Memorandum"). The A/E contract, and FAR 52.236-23, specifically contemplated the evaluation of the reasons for the issuance of bilateral Contract modifications according to the Policies and Procedures Memorandum. This Memorandum used eight classification codes to identify the reasons for issuance of Contract changes. Under the Memorandum's classification scheme a "Code A" change was the result of a design error occurring where the "[c]ontract documents call for items which are incorrect (wrong dimensions; incorrectly sized pipe, duct, and equipment; conflicts and interference's; etc.)." Similarly, the Memorandum defined as "Code B" Contract change as resulting from a design omission that occurred where the "[c]ontract documents fail to include items necessary to the project, of which the A/E should have been aware (utilities to equipment, missing Architectural Details, etc.)." (Rule 4, tab 2168; Exh. J-1)

The VA Project Manager, located in the VA Central Office in Washington, DC, assigned the issuance codes. The Project Manager assigned the codes based on the information provided in the Price Negotiation Memoranda ("PNM"), or "memoranda for the records" provided by Resident Engineers in the field. On the Houston project, the Policies and Procedures Code A classification was applied to changes totaling $608,557. Classification Code B was applied to changes totaling $3,935,470. The original Contract price for phases II and III was $172,690,000. The percentage of "A" and "B" changes, therefore, amounted to .35% and 2.28% of the original contract amount, respectively. Altogether, the dollar value of changes classified as either A or B was 2.63% of the original contract amount. In the VA's internal assessment of the A/E's performance, these percentages did not indicate that the drawings or specifications were defective for the purpose of pursuing recovery from the A/E under the A/E contract. The VA made no determination that the A/E was negligent in its preparation of drawings and specifications and assessed no charges against the A/E based on the quality of the Contract documents. In fact, the VA commended the A/E for the high quality of its work. (Tr. vol. III: 389-90; Tr. vol. IV: 570-71; Exh. G-11)

Throughout the project, the A/E received average or higher than average evaluations from the VA. Both the A/E and Bateson received the Associated Building Contractors ("ABC") Excellence in Construction Award for the VAMC Houston project. The award designated the VA Medical Center as the best building constructed by an ABC contractor during the year. (R4, tab 2603; Exh. G-13; Tr. vol. II: 307-308).

The Contract includes the standard Federal Acquisition Regulation ("FAR"), 48 C.F.R. Chapter 1, and Department of Veterans Affairs Acquisition Regulation ("VAAR"), 48 C.F.R. Chapter 8, clauses usually found in VA construction contracts, including the

following clauses relevant to these appeals:

> Commencement, Prosecution, And Completion Of Work**,**
> FAR 52.212-3 (APR 1984)
> Changes, FAR 52.243-4 (APR 1984)
> Changes -- Supplement, VAAR 852.236-88(a) (APR 1984)
> Changes -- Supplement, VAAR 852.236-88(b) (APR 1985)
> Default (Fixed-Price Construction) FAR 52.249-10 (APR 1984)
> Disputes (Alternate I)**,** FAR 52.233-1 (APR 1984)
> Inspection Of Construction FAR 52.246-12 (JUL 1986)
> Inspection Of Construction VAAR 852.236-74 (APR 1984)
> Schedules For Construction Contracts, FAR 52.236-15 (APR 1984)
> Schedule Of Work Progress VAAR 852.236-84 (NOV 1984)
> Specifications And Drawings For Construction VAAR 852.236-71 (APR 1984)
> Specifications And Drawings For Construction FAR 52.236-21 (APR 1984)
> Suspension Of Work, FAR 52.212-12 (APR 1984)
> Superintendence By The Contractor, FAR 52.236-6 (APR 1984)

(R4, tab 10,455)

SECTION IIIB: DYNALECTRIC BID

Because it was suspended from bidding on Federal contracts from July 1987 until January 1988, Dynalectric did not submit a bid to Bateson to perform the VAMC Houston electrical work. In 1987, Marlon Electric Company, Inc. (Marlon), a Houston area electrical contractor and Marlon of Texas, Inc., formed a partnership for the purpose of bidding on work in the Houston area. Marlon of Texas was a wholly owned subsidiary of Dyncorp, the parent company of Dynalectric. Since there was no apparent difference in ownership or management direction, for the purposes of this decision, the Marlon of Texas/Dyncorp/Dynalectric entity will be referred to as Dynalectric. At the time of the formation of the partnership and performance of work on VAMC Houston, Dynalectric was the largest electrical contractor in the United States and had substantial experience in large hospital construction. The subcontract for the electrical work at Houston VAMC was between Marlon Electric Company, apparently the name under which the Marlon/Dynalectric partnership engaged in business, and Bateson. Dynalectric has also characterized the Dynalectric/Marlon partnership as a "joint venture". The terms of the partnership agreement provided Dynalectric an option to acquire Marlon; the option was exercised and Dynalectric's acquisition of Marlon was completed and all Marlon subcontracts and assets were assigned to Dynalectric in early 1989. Bateson consented to the assignment of the VAMC Houston electrical subcontract in February 1989. Preparation of the electrical subcontract bid and the administration and management of the performance of the electrical work at VAMC Houston prior to Dynalectric's acquisition of Marlon was performed by both Marlon and Dynalectric employees. (Tr. vol. I: 32-36, 43-50; Exhs. G-30-32, G-50, G-83, G-87, J-1)

Dynalectric performed a material take-off from the VA-furnished specifications, drawings and plans in order to estimate the quantities of materials necessary to perform

the electrical portion of the Houston VAMC project and determined its bid by extending labor and materials costs against the estimated quantities in the take-off. Dynalectric prepared its material quantity estimates on take-off sheets that reflect the VA-furnished drawing number and the quantity of electrical construction materials by type identified from that drawing. Dynalectric totaled the material quantities by type reflected on the take-off sheets. Dynalectric then estimated the amount of labor by hours that the Dynalectric personnel would require to install that amount of material by multiplying the material quantities by the NECA labor units. Both the material quantities and estimated labor hours are reflected on the pricing sheets. (Tr. vol. I: 36, 39, 83; R4, tabs 553-56; Exhs. A-25, G-2, G-7)

Dynalectric's total bid price for the electrical portion of the Houston VAMC Project was $20,000,000 plus $270,000 for provision of temporary electrical power and bond expenses; Bateson accepted Dynalectric's bid in June 1997. Dynalectric included a 9.4% factor for profit and $1,000,000 for "job expenses" in its bid. The job expenses included salaries for Dynalectric on-site project management staff. (Tr. vol. I: 40, 63, 89-90; R4, tab 3085; Exhs. G-2, G-3)

The Government estimate for the electrical work and temporary power for the VAMC Houston project was $20,313,371. Bateson received a total of five quotes for the electrical work. The price quote by Dynalectric for the electrical construction work ($20 million) was the low quote; the other four quotes for the electrical construction work (not including temporary power) were: $21,375,000; $22,311,000; $23,347,000; and, $25,957,000, or 6.8%, 11.6%, 16.7%, and 29.8% respectively more than Dynalectric's bid. (R4, tabs 2207, 3051)

Four employees were primarily responsible for preparation of Dynalectric's quote for the VAMC Houston project. None of these employees, although available, testified at the hearing in this matter. Mr. Larry Brookshire, President of Dynalectric during the course of the VAMC Houston project, reviewed Dynalectric's bid prior to its submission to Bateson. Mr. Michael Hensley, Dynalectric's on-site project manager, reviewed the bid approximately one month after its submission for the purpose of preparing internal report formats for tracking Dynalectric's financial performance on the project. Both Mr. Brookshire and Mr. Hensley testified that it was their belief that Dynalectric's bid contained no significant errors and was reasonable. (Tr. vol. I: 39; Tr. vol. III: 372, 393, 447)

Mr. Brookshire has substantial experience in estimating and constructing large hospital electrical installations as senior estimator, president and Chief Executive Officer of three major electrical contractors, including Dynalectric. Mr. Brookshire traveled to Houston to review the take-offs with the bid team and to finalize Dynalectric's quote. Dynalectric's preparation of its quote to Bateson "was a sizable task that required numerous employees working many weeks, if not months, in preparing that comprehensive take-off." He personally participated in Dynalectric's final bid preparation, reviewed the take-offs, and determined that the "labor units" used to make the bid were reasonable. Mr. Brookshire, based on his review of the bid, determined at the time, that the manhours and the amount of materials in the estimate were reasonable for the type and complexity of the project. Mr. Brookshire, did not, however, conduct a detailed, drawing by drawing review of the bid estimates and does not have specific

knowledge or recollection of how the estimators actually prepared the bid. (Tr. vol. I: 28-38, 73-88, 96-97, 119)

Mr. Hensley, as part of his duties as Dynalectric's on-site project manager, created and maintained numerous internal reports to track Dynalectric's productivity and financial performance on the project. One of these reports, the "Work in Progress" (WIP) report, was Dynalectric's primary tool for tracking its financial performance on the project. Approximately two-thirds through the course of the VAMC Houston project, Dynalectric, based on its analysis of the WIP, determined that it was in a substantial loss position, due primarily to an overrun in labor hours. Dynalectric undertook an internal investigation to ascertain why the assumed losses were occurring and whether there was any basis for a claim to recoup these losses. This investigation, undertaken by a member of Dynalectric's in-house legal staff, Mr. Ambroso, involved the review of project records and interviews with Dynalectric project personnel, including Messrs. Brookshire and Hensley in late 1990 and early 1991. Mr. Ambroso maintained notes during the course of his investigation. These notes are part of the record in these appeals; however, Mr. Ambroso did not testify at the hearing. Messrs. Brookshire and Hensley both acknowledged meeting with Mr. Ambroso several times to discuss the investigation into Dynalectric's losses. Mr. Brookshire could not specifically recollect the specifics of the issues recorded in the notes. (Exh. G-5, Tr. vol. I: 41, 63-64, 67, 70-78; Tr. vol. III: 437)

Dynalectric planned, at the time it bid, to expend $907,000 less for materials than the amount reflected in its bid. Dynalectric expected to execute this planned "buy-out" by negotiating lower material prices than the quotes for materials it had incorporated in the bid. In Mr. Brookshire's estimation, this buy-out would insulate Dynalectric from what he calculated as risk that the bid had a $589,000 labor shortage and a $318,000 shortage in the amount for job expenses (overhead). Primarily, because of savings realized in the actual purchase prices against bid prices for major electrical equipment, Dynalectric realized a materials "buy-out" of $1,024,267; however, it overran its bid cost for materials by $52,267. (Exhs. A-19, G-2, G-3, G-4; Tr. vol. I: 99-100, 114-19, 149-50; Tr. vol. III: 448; Tr. vol. XIII: 2230-31)

The job expense amount of $1 million (estimate of $958,750 rounded to $1 million) in its quote to Bateson was based on Dynalectric's estimate of a project management staff of four with 150 manhours (MH) estimated per week. Shortly after award of the subcontract, Dynalectric revised its estimate of the project management staffing requirements requiring a staff of nearly seven and 250 MH per week over the VAMC Houston project life. During the life of the project, project management MH were generally in excess of 250 MH per week. (Tr. vol. I: 89-90, 128, 130-35; Exhs. A-19, A-22, G-3, G-4, G-5)

Dynalectric experienced an overall composite labor cost rate for its crews approximately $3.18 per hour more than the estimated labor rate in the bid. This difference resulted primarily from Dynalectric's crews having more journeymen and apprentices and fewer laborers than the crew mix used in bid preparation. This difference between the bid labor rate and the actual, experienced labor rate occurred at the outset of the work. The composite labor rate experienced by Dynalectric on the Houston VAMC project was $22.55. (Exhs. A-6, A-19, A-22, G-5; Tr. vol. I: 186-88; Tr. vol. II: 253-54).

Just prior to submitting its bid to Bateson, Dynalectric cut its labor estimate by 17,500 hours. This cut resulted from Dynalectric's determination to increase its productivity projection for installation of ¾" conduit to 4.75 hours per 100 feet. Installation of this "small" conduit was a major part of the electrical work in the VAMC Houston project. This installation rate was extremely optimistic and was on the high end of the NECA estimates for the productivity rate at which ¾" conduit could be installed in normal, office building construction. The VAMC Houston project, involving complex hospital construction and a myriad of specialized systems, would ordinarily involve lower productivity rates. In its internal investigations during the course of performance, Dynalectric found that the productivity rate for small conduit installation used to develop its quote to Bateson was unachievable. (Tr. vol. I: 93-94; Tr. vol. III: 445; Tr. vol. XVI: 2891; Exhs. G-3, G-5)

Dynalectric records indicate that conduit installation overran its projections by $263,951 for materials and $1,452,875 for labor. As acknowledged by Mr. Brookshire, every dollar of conduit material costs generally results in about 6 dollars of labor costs for conduit installation, a ratio of 1:6. The ratio of material to labor costs reflected in Dynalectric's records for the small conduit overrun is 1:5.5. Dynalectric's internal investigation of its losses also identified a potential bid underestimate of the conduit materials required for the job due to its estimators doing a detailed take-off from drawings for a "typical" area of Building 100 of the project rather than performing a detailed take-off from each of the drawings. The Dynalectric internal investigation indicates that the quantity of conduit necessary for a "typical" area was applied to the rest of the areas to arrive at the bid estimate for the amount of conduit required for the job. This indication is derived, in part, from the fact that the conduit bid estimates are in large round increments. Use of such increments could reflect either averaging and factoring conduit requirements for typical floors or the fact that the conduit in question comes in ten-foot lengths and the